REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

The Examiner is kindly thanked for considering the documents cited in the Information Disclosure Statement filed on July 28, 2006, and for returning an initialed and signed copy of form PTO-1449 submitted with that Information Disclosure Statement acknowledging considering of the cited documents.

The Examiner's attention is directed to the Second Information Disclosure Statement filed on December 10, 2007 providing copies of various document cited by the European Patent Office in a corresponding foreign application. The Examiner is kindly asked to consider the documents cited in that Second Information Disclosure Statement, and to return an initialed and signed copy of form PTO-1449 submitted with that Second Information Disclosure Statement.

The subject matter of this application generally pertains to a stabilizer disposed between right and left wheels of a vehicle. More particularly, the subject matter of this application involves a stabilizer control apparatus that controls the torsional rigidity of the stabilizer to actively control the rolling motion of the vehicle body in response to the turning state of the vehicle.

Before considering the claims at issue in this application and ways in which the claimed stabilizer control apparatus here distinguishes over the disclosures in the references relied upon in the Official Action, it is thought that a brief overview may be helpful.

The background portion of the present application points out that known vehicle stabilizers are constructed so that the torsional rigidity of the stabilizer is set

relatively high to address the input from the inertia of the vehicle body, thereby restraining the roll angle of the vehicle body and stabilizing the vehicle attitude. On the other hand, the torsional rigidity of the stabilizer should desirably be set relatively low for addressing the input from the wheel to improve the ride comfort. Thus, these two aspects are somewhat at odds with one another.

As illustrated in Fig. 3 of the present application, a control structure is provided that includes a roll restraining block M14 in which roll restraining control is performed to restrain the roll angle of the vehicle body when the vehicle is turning, a stabilizer free control block M15 that helps decrease the torsional rigidity of the stabilizers to improve the ride comfort on a rough road, and a roll damping control block M16 that controls the damping force in the rolling direction of the vehicle. The roll restraining control block carries out restraining control to stabilize the vehicle attitude when the vehicle is turning, while the stabilizer free control performed by the stabilizer free control block M15 and the roll damping control performed by the roll damping control block M16 help improve the ride comfort when the vehicle is not generally turning or is traveling straight. It is thus possible to both stabilize the vehicle attitude when the vehicle is turning, while also improving the ride comfort when the vehicle is generally not turning or is traveling straight.

Turning now to the claims, the stabilizer control apparatus recited in independent Claim 1 comprises wheel stroke detecting means for detecting the relative displacement between the vehicle body and the right and left wheels for at least one of the front/rear axles of the vehicle, and wheel stroke difference calculation means that calculates, based on the result detected by the wheel stroke detection means, at least one of the differences between the right and left wheel

strokes and the difference between the right and left wheel stroke velocities. The stabilizer control apparatus also comprises externally applied force setting means that sets an externally applied force for controlling the torsional rigidity of the stabilizer, based on the result calculated by the wheel stroke difference calculation means when the vehicle is traveling straight.

To better define this externally applied force setting means, independent Claim 1 is amended to recite that the externally applied force, based on the result calculated by the wheel stroke difference calculation means, is decreased when the vehicle is traveling in the turning state or is turning.

The claimed stabilizer control apparatus at issue here is able to restrain the roll angle of the vehicle body when the vehicle is turning, and is also able to actively control the stabilizer, through application of the externally applied force set by the externally applied force setting means, to address an input from the road surface when the vehicle is traveling straight. The stabilizer control apparatus thus provides a desired ride comfort.

Independent Claim 7 defines that the stabilizer control apparatus comprises, in addition to the wheel stroke detection means, a wheel stroke lateral difference calculation means that calculates the difference between the right and left and wheel strokes based on the result detected by the wheel stroke detection means, and the externally applied force setting means that sets the externally applied force to control the torsional rigidity of the stabilizer based on the result calculated by the wheel stroke lateral difference calculation means. In addition, a turning factor setting means sets a turning factor indicative of the turning state of the vehicle, with the

torsional rigidity of the stabilizer bar being decreased to be lower than the value inherently provided for the stabilizer bar.

To better define this turning factor setting means, Claim 7 is amended to recite that when the turning factor set by the turning factor setting means is smaller than a predetermined value, the externally applied force setting means decreases the torsional rigidity of the stabilizer bar so that it is lower than the value inherently provided for the stabilizer bar, according to the externally applied force set by the externally applied force setting means, and that when the turning factor is larger than the predetermined value, the externally applied force setting means decreases the externally applied force.

Thus, the stabilizer control apparatus is able to reliably restrain the roll angle of the vehicle when the vehicle is turning, and the stabilizer can be actively controlled to decrease the stabilizer torsional rigidity in response to input from the wheels when the vehicle is generally not turning or is traveling straight to thereby help provide an appropriate or desired ride comfort.

The Official Action sets forth a rejection of independent Claims 1 and 7, and all of the dependent claims, based on the disclosure in Japanese Application Publication No. 8-132844 (JP '844) in view of the disclosure in Japanese Application Publication No. 60-064016 (JP '016). That rejection is respectfully traversed for at least the following reasons.

Referring to the English language abstract of JP '844, this document describes a vehicle stabilizer control device that controls the rolling characteristics of the vehicle by varying the stiffness of the stabilizer through use of an actuator. The stabilizer control device includes a stabilizer A1 that controls the rolling vibration of

the vehicle, and an actuator A2 that varies the rolling stiffness of the vehicle through operation of the stabilizer A1. A lateral direction momentum detecting means A3 detects the lateral direction momentum, and a variation rate detecting means A4 finds the variation rate of the lateral direction momentum. Further, the stabilizer control device is provided with a target control amount operating means A5 that operates a target control amount equivalent to spring force based on the lateral direction vibration amount and the vibration rate of the lateral direction momentum. An actuator control means A6 controls the actuator A2 based on the target control amount to thereby vary the stiffness of the stabilizer.

One difference between the stabilizer control apparatus recited in Claim 1 and the stabilizing control device in JP '844 is that the reference does not include an externally applied force setting means as recited in Claim 1. The device disclosed in JP '844 is not constructed as a device for actively applying an external force to vary the stabilizer characteristics. The description in paragraph [0021] of JP '844 supports this conclusion. Here, JP '844 states that "(w)hen the vehicle is turning, a target amount of stroke corresponding to spring force is determined according to the vehicle speed and steering angle, and also a target amount of stroke corresponding to damping force is determined according to a relationship provided in advance on the basis of the vehicle speed and steering angular velocity, thereby to determine a target amount of stroke for a cylinder unit 16. Based on the amount, an oil pressure device 3 is actuated so as to extend or shrink the cylinder unit."

Thus, the stabilizer control device described in JP '844 is of a type specifically adapted to vary (extend and contract) the target amount of stroke of the cylinder unit 16 to change the characteristics of the stabilizer 13. The disclosed stabilizer control

device is not one which actively applies an external force so as to vary the stabilizer characteristics. More specifically, the stabilizer control device in JP '844 does not include an externally applied force setting means that sets an externally applied force to control the torsional rigidity of the stabilizer when the vehicle is traveling straight, with the externally applied force set on the basis of the result calculated by a wheel stroke difference calculation means being decreased when the vehicle is turning.

The disclosure in JP '016 does not make up for the deficiencies discussed above with respect to the disclosure in JP '844. JP '016 describes a stabilizer control device that seeks to achieve an improvement in the driving stability of the vehicle. More specifically, the stabilizer control device is designed to improve the driving stability of a vehicle whose rear wheels are provided with variable torsional rigidity stabilizers by temporarily lowering the torsional rigidity when it is determined that the front wheels are riding on a rough road surface. The disclosed stabilizer control device includes road surface condition detecting means 12L, 12R that are connected to a control circuit 13. Signals RSL, RSR produced by the road surface condition detecting means 12L, 12R are sent to the control circuit 13 which then determines whether the absolute value of the signals RSL, RSR exceeds a predetermined value. If the difference between the absolute value of the signals exceeds the predetermined value, the time T required for the rear wheels to pass the rough road surface is calculated based on the vehicle speed and the wheel base L, and a torsional rigidity value proportional to the speed is selected. The torsional rigidity value signal CS is fed to a torsional rigidity variable stabilizer driving device 22 for the time period T to lower the rigidity of the torsional rigidity variable stabilizers 10.

As JP '016 does not disclose providing the stabilizer control device with an externally applied force setting means that sets an externally applied force to control the torsional rigidity of the stabilizer when the vehicle is traveling straight, and wherein the externally applied force is decreased when the vehicle is turning, a combination of the disclosure in this reference, considered together with the disclosure in JP' 844, would not have directed one to do that which is recited in Claim 1 as the invention.

It is thus respectfully submitted that the claimed stabilizer control apparatus recited in independent Claim 1 is patentably distinguishable over a combination of the disclosures in JP '844 and JP '016.

Turning to Claim 7, the claimed stabilizer control apparatus comprises, as discussed above, the externally applied force setting means that sets the externally applied force for controlling the stabilizer torsional rigidity, based on the results of the calculation by the wheel stroke lateral difference calculation means. As explained above, neither JP '844 nor JP '016 discloses an externally applied force setting means as claimed.

Further, neither reference discloses the additional aspects of the externally applied force setting means recited in Claim 7 relative to the turning factor setting means. That is, neither reference discloses an externally applied force setting means that decreases the torsional rigidity of the stabilizer bar so that it is lower than the value inherently provided for the stabilizer bar when the turning factor set by the turning factor setting means is smaller than a predetermined value, and that decreases the externally applied force when the turning factor is larger than the predetermined value. It is thus respectfully submitted that if one were somehow

motivated to combine the disclosures in the two cited references, the result would not be the stabilizer control apparatus defined in independent Claim 7. Accordingly, withdrawal of the rejection of record is respectfully requested.

The dependent claims define further distinguishing features associated with the stabilizer control apparatus. In this regard, it is noted that the Official Action does not address any of the additional aspects of the stabilizer control apparatus recited in the dependent claims. For example, dependent Claim 2 recites that the externally applied force setting means sets the externally applied force based on a desired value for decreasing the roll rigidity, with such desired value being determined on the basis of the difference between the right and left wheel strokes. Claim 3 recites that the externally applied force setting means sets the externally applied force on the basis of a desired value of roll damping force, with the desired value of roll damping force being determined on the basis of the difference between the right and left wheel stroke velocities. Considering that the two applied references do not disclose an externally applied force setting means as discussed above, it cannot be said that either of the applied references discloses the subject matter recited in Claims 2 and 3 pertaining to the externally applied force setting means.

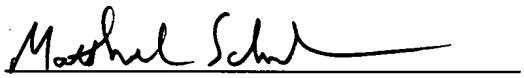
The other dependent claims define further distinguishing features. In the event a communication other than a Notice of Allowance is issued in response to this Amendment, the Examiner is kindly asked to specifically address each of the dependent claims and identify with specificity relevant portions of the reference(s).

Early and favorable action with respect to this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: February 19, 2008 By: 

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